

IN THE CLAIMS:

A complete listing of the claims and their status as of this Amendment is as follows:

Claim 1 (currently amended): A method of forming high-molecular polymers starting from gel-forming water-insoluble polymers of the acrylic-type, comprising the steps of:

- a): dissolving an amount of at least one initiator-modifier compound of the general formula of one of EHaO , EHaO_2 , EHaO_3 or EHaO_4 , wherein E comprises consists of one of hydrogen, an alkali metal or an alkali earth metal and Ha comprises consists of halogen, in an aqueous solution at a starting temperature;
- b): adding a gel-forming water insoluble polymer to the solution and mixing it therewith to form macro-aggregates from the polymers; and
- c): modifying the macro-aggregates by at least one of heating and or irradiation to form water-soluble high-molecular polymers.

Claim 2 (currently amended): The method of claim 1, wherein modification of the macro-aggregates by heating further comprises increasing the temperature of the solution steadily or in intervals from the starting temperature to an elevated aging temperature for a pre-determined time period.

Claim 3 (previously presented): The method of claim 1, further comprising the step of adding a reducing agent to the solution for the removal of excess initiator-modifier compound.

Claim 4 (canceled):

Claim 5 (currently amended): The method of claim 1, further comprising selecting the initiator-modifier compound from the group consisting of at least one of CaOCl_2 , ozone, peroxide compounds E_2O_2 and ammonium peroxy sulphate.

Claim 6 (currently amended): The method of claim 1, further comprising generating the initiator-modifier compound 'in situ' by adding precursor compounds or educts for forming 'in situ' substances of the general formula of one of the group comprising consisting of one of EHaO , EHaO_2 , EHaO_3 or EHaO_4 wherein:

E comprises consists of at least one of hydrogen, an alkali metal or an alkali earth metal; and

Ha comprises consists of a halogen.

Claim 7 (currently amended): The method of claim 1, further comprising determining the concentration of the initiator-modifier compound according to a concentration of active oxygen.

Claim 8 (currently amended): The method of claim 7, further comprising preparing the concentration [(] by weight [)] of the initiator-modifier compound to be between 0.05 and 20.0% of the polymer mass to be modified.

Claim 9 (previously presented): The method of claim 7, further comprising preparing the concentration of the initiator-modifier compound to be between 0.1 and 10%, preferably between 0.3 and 5%, and most preferably between 0.5 and 1.0% of the polymer mass to be modified.

Claim 10 (previously presented): The method of claim 1, further comprising adding the polymer in solid form.

Claim 11 (previously presented): The method of claim 10, further comprising adding the polymer to the reaction solution in a granulated form.

Claim 12 (previously presented): The method of claim 11, further comprising selecting the polymer composed of particles with a mean diameter of maximum 400 μm , preferably maximum 200 μm , and most preferably maximum 150 μm .

Claim 13 (currently amended): The method of claim 1, further comprising forming a reaction mixture of water and adding an amount of an alkaline compound for forming an alkaline solution that is less than 10% per weight of the reaction mixture.

Claim 14 (previously presented): The method of claim 1, further comprising allowing dissolution of the initiator-modifier compound in a temperature range between 0 and 50 °C.

Claim 15 (previously presented): The method of claim 1, further comprising adding the polymer within 20 minutes.

Claim 16 (currently amended): The method of claim 1, wherein the polymers to be modified are selected from further comprising selecting the polymers to be modified as hydrophilic superabsorbent polymers that are copolymers of superabsorbents on a base of an acrylic acid.

Claim 17 (currently amended): The method of claim 1, further comprising selecting the concentration amount of polymer in a reaction mixture is to be between 0,1% 0,1% and 50.0% per of a weight of the reaction mixture.

Claim 18 (previously presented): The method of claim 1, further comprising maintaining the pH of the reaction solution between 5 and 14.

Claim 19 (previously presented): The method of claim 1, further comprising aging the resulting reaction at an aging temperature of 20 to 50 °C for at least 1 hour.

Claim 20 (currently amended): The method of claim 1, further comprising irradiating the reaction mixture by electromagnetic radiation comprising consisting of at least one of daylight, UV-light, penetrating (γ) and X-ray radiation.

Claim 21 (previously presented): The method of claim 1, further comprising agitating or stirring the reaction mixture vigorously during and after the addition of the gel-forming water insoluble polymer.

Claim 22 (currently amended): A high molecular mass acrylic polymer formed by the steps comprising:

dissolving an amount of at least one initiator-modifier compound of the general formula of one of EHaO , EHaO_2 , EHaO_3 or EHaO_4 , wherein E comprises consists of one of hydrogen, an alkali metal or an alkali earth metal and Ha

comprises consists of halogen, in an aqueous solution at a starting temperature;

adding a gel-forming water insoluble polymer to the solution and mixing it therewith to form macro-aggregates from the polymers; and

modifying the macro-aggregates by at least one of heating and or irradiation to form water-soluble high-molecular polymers.

Claim 23 (previously presented): The acrylic polymer of claim 22, wherein the average molecular weight is between 0.2×10^6 and 15×10^6 a.u.

Claim 24 (canceled)

Claim 25 (currently amended): The acrylic polymer of claim 22, further comprising
adding a reducing agent for removing excess initiator-modifier compound.

Claim 26 (currently amended): The acrylic polymer of claim 22, wherein the initiator-modifier compound is selected from the group comprising consisting of at least one of CaOCl₂, ozone, peroxide compounds E₂O₂ (E₂O₂); and ammonium peroxyxsulphate.

Claim 27 (currently amended): The acrylic polymer of claim 22, wherein the concentration of the initiator-modifier compound is determined according to a concentration of active oxygen.

Claim 28 (previously presented): The acrylic polymer of claim 22, wherein the concentration by weight of the initiator-modifier compound is approximately between 0.05 and 20.0% of the polymer mass to be modified.

Claim 29 (previously presented): The acrylic polymer of claim 22, wherein the polymer is comprised of particles with a mean diameter maximum of approximately 400 μ m.

Claim 30 (currently amended): The acrylic polymer of claim 22, wherein an amount of further comprising forming an alkaline solution from an alkaline compound for forming an, wherein said alkaline compound solution is less than 10% per weight of the alkaline solution.

Claim 31 (previously presented): The acrylic polymer of claim 22, wherein the polymers to be modified are hydrophilic superabsorbents.

Claim 32 (currently amended): The acrylic polymer of claim 22, further comprising forming a reaction mixture, wherein the concentration of polymer in a the reaction mixture is between approximately 0.1% and 50.0% per weight of the reaction mixture.